5. MANAGEMENT GOALS AND KEY TASKS

The goals presented in this chapter provide broad guidance for long-term natural resource and public-use management of NSMWA. Tasks to implement each goal are also described. Implementation of the management goals and tasks outlined in this section will require additional staffing and an adequate operations and maintenance budget. **Chapter 6** identifies the additional resources needed to implement the LMP.

5.1 DEFINITION OF TERMS

This LMP has been developed in accordance with the DFG's *Guide and Annotated Outline for Writing Land Management Plans*, February 2003 (updated 2006) (CDFG 2006a). The guide organizes management information and guidelines into elements, goals, and tasks, establishing a hierarchy of management direction for the NSMWA. Elements relate to the broad categories of consideration, goals define objectives within the elements, and tasks establish specific actions to attain the goals. Goals are based on the Fish and Game Code and policies of the California Fish and Game Commission. In addition, it is the policy of the California Fish and Game Commission to protect and preserve all native species diversity including those species experiencing a significant decline that, if not halted, would lead to their designation as threatened or endangered. Together these elements, goals, and tasks express the policy direction that will guide the management of the NSMWA. Terminology for describing management is part of DFG's standardized format for management plans. The terms defined below are used throughout this LMP to describe the current and planned management of the NSMWA.

ELEMENT: Any biological unit, public-use activity, facility maintenance program, or management coordination program (as defined below) for which goals have been prepared and presented within this LMP.

- **Biological:** Consists of species, habitats, or communities for which specific management goals have been developed within this LMP.
- **Public Use:** Refers to recreational and other public uses. (This element refers to any recreational, scientific, or other use activity appropriate to and compatible with the purposes for which this property was acquired.)
- **Agricultural Resources:** Refers to agricultural activities.
- **Cultural Resources:** Refers to preservation of cultural resources.
- **Facility:** Refers to the program of maintenance and administrative tasks that supports the attainment of goals for the biological and public-use elements.
- **Administration:** Refers to the maintenance and documentation of management actions and activities that supports the attainment of goals for the biological and public-use elements.

- **Scientific Research and Monitoring:** Refers to scientific research and monitoring that supports the attainment of goals for the biological and public-use elements.
- **Management Coordination:** Coordination with management programs that are supportive of and compatible with the activities of other public agencies.

GOALS

- **Biological:** Statement describing management aims and intended long-term results for a biological element.
- **Public Use:** Statement describing management aims and the resulting type and level of public use (which is intended to be compatible with the goals for biological elements).
- **Agricultural Resources:** Statement describing management aims and the resulting type and level of agricultural activities for the agricultural element.
- **Cultural Resource:** Statement describing management aims and its intended results for a cultural resources element.
- **Facility Maintenance**: Statement describing management and the resulting type and level of facility maintenance (which is intended to support attainment of the goals for the biological and public-use elements).
- **Administrative:** Statement describing management aims and its intended results for the administrative element.
- **Scientific Research and Monitoring**: Statement describing management of procedures for or types of scientific research and monitoring conducted at NSMWA.
- **Management Coordination:** Statement describing the desired type and level of management coordination activities that are required to achieve the biological element and public use goals previously specified within this LMP.

TASK: Individual project or work element that implement the goals and are useful in planning operation and maintenance budgets (*not included in this draft list of management goals and elements*).

5.2 GOALS AND TASKS FOR ELEMENTS

5.2.1 Biological Element

The biological sub-elements of the LMP include management for special-status species, non-native invasive species, habitats (wetland, upland, riparian and aquatic).

5.2.1.1 Special-status Species

The special-status species sub-element of the LMP discusses management goals for special-status plants, wildlife, fish and aquatic species. The NSMWA is home to several known

occurrences of sensitive species, including the California clapper rail, the salt marsh harvest mouse, northern harrier, Delta tule pea, and Mason's lilaeopsis. The NSMWA likely supports several additional occurrences that have not previously been recorded.

BIO GOAL 1: ***Maintain, enhance, and increase habitat for endangered, threatened, rare, and sensitive plant, fish, and wildlife species.***

Tasks:

1. Conduct baseline surveys of special-status species with potential to occur in the NSMWA. This task will include conducting surveys for new, previously unrecorded occurrences of special-status species, as well as revisiting known populations of special-status species in the NSMWA to confirm their presence or absence. Where appropriate, DFG should coordinate survey efforts with the USFWS. All occurrences should be reported to the California Natural Diversity Database (CNDDB).
2. Develop a comprehensive monitoring program for known special-status species populations to detect change in distribution and abundance, and to detect effects of management activities, public uses, and non-native species. The monitoring program will make recommendations for protection measures for those special-status species that are threatened by such conditions as non-native species, contaminants or public use.
3. Develop guidelines for protecting special-status bat species habitat in the NSMWA. This includes preservation of existing human made structures to the extent that is feasible. Human made structures, such as pump houses and barns, are often used by bats for roosting. In addition, artificial water sources constructed in the NSMWA should follow the guidelines outlined in Water for Wildlife guidelines (Taylor and Tuttle 2008).
4. Research reintroduction potential for special-status species in suitable habitats in NSMWA.

5.2.1.2 Non-native Invasive Species

The non-native species sub-element includes management goals and tasks for non-native plants and wildlife that occur or could be become established in the NSMWA in the future. While complete eradication of non-native species from the NSMWA would be ideal, it is unlikely that the resources to complete such a task will be available to the DFG. However, identification, monitoring, and control of non-native species are potentially fundable tasks to limit the negative effects from unchecked spread of non-natives in the NSMWA.

BIO GOAL 2: ***Minimize the introduction and spread of non-native invasive species that potentially have negative impacts on native plant or wildlife species.***

Tasks:

1. Inventory habitats for invasive plant infestations and map the infestations (e.g., perennial pepperweed, nonnative cordgrass [*Spartina alterniflora, S. densiflora,* and *S. patens*], tall reed [*Arundo donax*], yellow star thistle).
2. Coordinate with existing non-native species monitoring and eradication programs, in particular the:
   a. Invasive Spartina Project for the monitoring and management of non-native invasive cordgrass species.
   b. USFWS for perennial pepperweed control.
3. Prioritize infestations to target for control treatment. Prioritization will be based on such factors as size of infestation, location, condition of habitat, and adjacent land use.
4. Control invasive species through integrated pest management (rotational grazing, prescribed burning, pesticide application, mechanical removal). To integrate pest management, DFG would develop a plan, which in part, would result in protocols for implementing prescribed burns and pesticide application. At minimum, DFG would involve the applicable staff at the Bay Area Air Quality Management District and the applicable fire agencies, (e.g., California Department of Forestry and Fire Prevention) to assist in the development of a protocol for prescribed burns. DFG would follow all rules required under the Open Burning Regulations of the BAQMD. DFG would also include a protocol for pesticide application. This protocol would describe the types and application forms of different pesticides that could be used under the specific environmental conditions present at the NSMWA. This protocol could be developed with the assistance of the applicable county mosquito abatement agency, as well as the DFG Pesticide Investigation Unit and DFG mosquito abatement BMPs.

5.2.1.3 Wetland Habitat

The wetland habitat sub-element includes management goals and tasks for wetland habitats in the NSMWA. Wetlands are the dominant habitat type in the NSMWA, and include seasonal wetlands, tidal marsh, perennial wetlands and mudflats (see **Section 3.8** for a description of these habitat types).

BIO GOAL 3 (Seasonal and Perennial Wetlands and Tidal Marsh Habitat): ***Maintain and enhance habitat for resident and migratory birds, and mammal, amphibian, and reptile species.***

Tasks:

1. Identify restoration opportunities in the NSMWA. Evaluate the constraints and benefits for each potential project, and prioritize the project list. Example projects are:
   a. Restore tidal circulation to the Green Island Unit when Cargill has completed harvest operations at its former Napa Plant Site, in a manner that is consistent with regulatory requirements.
   b. Develop habitat restoration objectives for the Southern Crossing Unit.
   c. Evaluate the reestablishment of the historical connection of Tolay Creek and associated tidal wetlands to Sonoma Creek.
2. Pursue funding opportunities for identified restoration opportunities in the NSMWA.
3. Provide a diversity of habitats for wildlife species in the NSMWA. A wide variety of wildlife species occur in the NSMWA, including many species of waterfowl, raptors, passerines, shorebirds, and mammals. Maintaining a diversity of wetland habitats, including seasonal and perennial wetlands and tidal wetlands will support the continued occurrence of all of these species, as well as attract new species in the future.
4. When considering restoration sites and designs, maximize synergy with adjacent wetland projects (e.g., City of American Canyon tidal and treatment wetlands, Cullinan Ranch and Napa County Flood Control District lands).
5. Use locally collected native plants in the design of restoration projects. Many seed and propagule sources for native plants are present in the NSMWA.
6. Develop and implement projects that would be consistent and compatible with the applicable Napa County Airport Safety Compatibility Zones and FAA advisory guidelines related to bird-strike hazards.

BIO GOAL 4 (Managed Former Salt Pond Habitat): ***Improve the ability to manage water levels and salinity levels in managed ponds to maximize feeding and resting habitat for migratory bird and resident waterfowl.***

Tasks:

1. Repair or replace water control structures to ensure effective control of water levels and salinity level.
2. Monitor water quality of the managed ponds to insure salinity reduction process is adequate.

Image of the interior of pond 2A in fall 1998. When water and sediment circulated with the tide cycles through the pond for the first time in over 40 years, there was rapid reestablishment of vegetation and a diversification of wildlife use.

BIO GOAL 5 (Managed Former Salt Pond): ***Minimize contaminant risks from salt pond restoration.***

Tasks:

1. Minimize mobilization of potential contaminants, such as methylmercury, in sediments to the extent possible.
2. For the Napa Plant Site, restore tidal circulation when Cargill has completed harvest operations and consistent with the BCDC permit, RWQCB waste discharge requirements, and the USACE permit.

5.2.1.4 Upland and Riparian Habitat

The upland and riparian habitat sub-element addresses management goals and tasks for upland and riparian habitats in the NSMWA. Uplands include grasslands, non-native trees, and levees. The upland areas of the NSMWA are relatively small and limited in extent. These uplands, as well as non-native tree stands and levees, provide an important refugia for wildlife species. Eucalyptus trees provide roosting sites for several unique bird species such as the double-crested cormorant and herons. Riparian corridors, such as those along American Canyon and Huichica Creek, provide freshwater in the mostly brackish water NSMWA. The vegetation of the riparian corridors provides nesting and foraging opportunities for a variety of wildlife species.

BIO GOAL 6 (Upland Grassland Habitat): ***Restore and enhance grassland and upland communities to conditions that provide desired ecological conditions and support diversity and abundance of plant and wildlife species.***

Tasks:

1. Identify feasible grassland and upland restoration projects. Potential restoration projects should provide a diversity of upland habitats through plantings of native grasses, forbs, shrubs, and tree species, and provide habitat features such as ponds and trees used by wildlife, where appropriate.
2. Prioritize potential grassland and upland restoration projects.
3. Pursue funding and develop plans for identified grassland and upland projects. Proposals for obtaining funds should include goals, techniques, costs, monitoring, and adaptive management. Pursue funding through partnerships when appropriate.

BIO GOAL 7 (Riparian Habitat): ***Maintain and enhance riparian habitat to conditions that provide desired ecosystem benefits, including improved wildlife habitat and increased bank stability.***

Tasks:

1. Evaluate opportunities, constraints, and potential restoration benefits for riparian restoration in the NSMWA. Restoration designs in riparian areas should provide for structural diversity, increased bank stability and a diversity of plant species. Riparian restoration should include goals for common and sensitive-species such as the freshwater shrimp, western pond turtle, neotropical birds and steelhead trout, where applicable. Restoration planning should also evaluate the direct and indirect influences of neighboring properties on riparian areas in the NSMWA.
2. Prioritize potential riparian restoration sites in the NSMWA. Based on information collected under Task 1, riparian restoration projects should be prioritized based on the significance of the site and potential loss or degradation of habitat.
3. Pursue funding and develop plans for identified riparian restoration projects. Proposals for obtaining funds should include goals, techniques, costs, monitoring and adaptive management. Pursue funding through partnerships, where appropriate.
4. Maintain previously restored riparian areas at Huichica, American Canyon and Tolay Creeks.

5.2.1.5 Aquatic Ecosystems

The aquatic ecosystems sub-element discusses management goals and tasks related to the aquatic resources in the NSMWA. The aquatic ecosystems of the NSMWA include both native and non-native fish and aquatic invertebrate species.

BIO GOAL 8 (Aquatic Ecosystem): ***Maintain and enhance aquatic ecosystems for diversity and abundance of native and game fish and aquatic invertebrate species.***

Tasks

1. Increase understanding of fisheries and aquatic invertebrates use of the NSMWA through expanded monitoring. When establishing a monitoring design, include methodology that will measure effects of restoration on these species. Add monitoring locations at Ringstrom Bay, Sonoma Creek, Sonoma Creek Unit, White Slough, American Canyon, Little Island Farm, and Huichica Creek Unit.
2. Provide a greater diversity of aquatic habitats and improve existing habitat structure in tidal marshes of the NSMWA.

5.2.2 Public Use Element

The public use element of the LMP addresses both authorized and unauthorized public use of the NSMWA.

5.2.2.1 Authorized Public Use

Authorized public uses in the NSMWA include hunting, angling, wildlife viewing, hiking, walking, boating, kayaking, nature study, and environmental education. The management goals and tasks related to these authorized public uses are described below.

PU GOAL 1: ***Increase existing and provide new opportunities for low impact, wildlife-oriented uses that are compatible with wildlife and habitat goals.***

Tasks for maintaining and improving hunting access:

1. Expand hunting opportunities as habitat and access are improved on restored sites and former duck club sites.
2. Post hunting regulations at appropriate locations.

Tasks for maintaining and improving fishing access:

1. Develop maps and signs that indicate fishing access points.
2. Post fishing regulations at appropriate locations.
3. Create angling access points (e.g., potential for barge docks at Green Island Unit to provide angling access).

Tasks for maintaining and improving wildlife viewing:

1. Improve access roads and levees.
2. Provide access for wildlife viewing at restored sites.

3. Post additional interpretive wildlife signage at strategic locations.
4. Provide opportunities for hand launched water craft (e.g., kayaks, canoes) in appropriate locations.

Tasks applicable to all public uses:

1. Coordinate with Bay Trail, Napa, Solano, and Sonoma Counties and City of American Canyon to evaluate the feasibility to complete an alignment of the Bay Trail surrounding the northern and eastern boundaries of the Napa River and Huichica Creek Units.
2. Create a brochure and updated map for the NSMWA. The map should be made in coordination with the USFWS. The maps should include public access points, parking lots, and allowable uses. Brochures should include information on public use, native plant and wildlife, mission of the DFG and information on volunteering. Brochures and maps should be made available at key access points in the NSMWA, at Regional Headquarters and on the DFG website.
3. Design public access to minimize maintenance and patrolling.

PU GOAL 2*: Support and expand public use of the NSMWA for environmental education and interpretation.*

Tasks:

1. Develop interpretive signage and kiosks.
2. Develop informative DFG website for NSMWA.

3. Coordinate with local schools for classroom field trips and other educational activities.
4. Develop self-guided tours of the NSMWA.
5. Identify area(s) for a possible future interpretive/educational facilities.

PU GOAL 3: ***Encourage community partnerships.***

Tasks:

1. Coordinate with local non-profit groups that promote wildlife-dependent education and interpretation (e.g., Save the Bay, Bay Institute).
2. Identify opportunities to partner with groups to implement habitat enhancement projects (e.g., waterfowl hunters, Acacia Winery).
3. Identify opportunities to promote Earth Day activities at NSMWA Management Units.

PU GOAL 4: ***Minimize competition and conflicts among users and facilitate compatibility between public uses.***

Tasks:

1. Maintain and improve access roads, signs, restrooms, and other recreational facilities.
2. Inform the public of NSMWA use designations and use restriction through outreach, signage, and DFG's web site.

PU GOAL 5: Evaluate requests by Native Americans for use of the NSMWA for traditional activities, such as gathering native plant materials for cultural purposes.

Tasks:

1. Work with native peoples requests for access the NSMWA. Determine the purpose and need for access and/or collections within the NSMWA, based on applicable laws and treaties related to tribal use of state properties.

2. Develop access plans and issue permits for native peoples that are compatible with the goals of the LMP. Any authorization for access would identify species, limits, locations, seasons, and include standard liability clauses.

5.2.2.2 Unauthorized Public Use

Unauthorized public uses the NSMWA includes dumping of trash, vandalism, some sporting activities and various illegal activities. The management goals and tasks related to these unauthorized public uses are described below.

UPU GOAL 1: ***Prevent unauthorized use of the NSMWA.***

Tasks:

1. Maintain adequate signage identifying boundaries of NSMWA, particularly at American Canyon, White Slough, and the Sonoma Creek Unit where dumping and vandalism is more common.
2. Increase patrols of the NSMWA and enforce regulations that prohibit unauthorized uses.
3. Prohibit activities that are inconsistent with the NSMWA mission, including ballooning (landing), windsurfing and equestrian use.
4. Remove existing trash and other unwanted materials.
5. Provide additional trash receptacles at strategic locations.
6. Establish a regular monitoring and removal program of trash.
7. Meet with local law enforcement agencies, including County sheriff, California highway patrol, to coordinate law enforcement activities and explore options for cooperative programs.

5.2.3 Agricultural Resources Element

There are currently no agricultural operations in the NSMWA. There are limited opportunities in the NSMWA for using agriculture to enhance wildlife habitat. This element discusses management goals and tasks for using agriculture to enhance wildlife habitat in the NSMWA.

AG GOAL 1: ***Use agricultural techniques to maintain and enhance habitat for native and game wildlife and fish.***

Tasks:

1. Enhance grasslands and uplands through grazing, native grass plantings and other management techniques within upland areas of Huichica Creek, Ringstrom Bay, Wingo, Southern Crossing, and American Canyon Units. Enhancement will increase the heterogeneity of the uplands in order to provide more and/or improved foraging and breeding habitat for wildlife and fish species.

5.2.4 Cultural Resources Element

Cultural resources at the NSMWA are limited. The LMP proposes no specific actions that would cause impacts to cultural resources. However, since future phases of this LMP may result in undertakings that have the potential to impact cultural resources, more project-specific impact analysis may be required to determine whether future actions will have significant impacts to cultural resources. Potential ground-disturbing activities include levee maintenance and the

restoration and enhancement of marshland that was historically wetlands. **Section 3.9** contains additional information regarding cultural resources of the NSMWA.

CR GOAL 1: ***Catalog and preserve all significant prehistoric, historic-era, or present-day Native American cultural resources that are documented, and/or discovered, through field investigations within the NSMWA.***

Tasks:

1. Maintain library of printed cultural resource reports from the project area and a ¼-mile vicinity.
2. Conduct cultural resource surveys as necessary before significant ground-disturbing activities (e.g., excavations below normal plow depths) at undisturbed sites.
3. Formally record and evaluate historic structures within the project area, such as the Napa-Sonoma Marshes field office complex at 2148 Duhig Road.
4. Complete and submit site records to the State Historic Preservation Officer (SHPO) to establish and submit culturally significant resources that may be eligible for inclusion in the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR).
5. When facility improvements or restoration efforts are proposed and may affect historical or archaeological resources, consult CEQA guidelines for guidance on compliance with regulations.
6. Consult with the Native American Heritage Commission (NAHC) as appropriate.
7. Consult with the local tribe(s) as appropriate.

CR GOAL 2: ***Where appropriate, provide opportunities for on-site public interpretation of significant cultural resources.***

Task:

1. Display NSMWA cultural resources information in interpretive signage at key locations.
2. Coordinate with local tribe(s) for accurate information and input for interpretive signage.

5.2.5 Facilities Maintenance Element

Facilities at NSMWA include the public access roads, hunting blinds/fishing sheds, water conveyance structures, levees, parking lots, restrooms, and other building structures.

FM GOAL 1: ***Maintain or improve existing levels of flood protection.***

Tasks:

1. Identify, evaluate and set priorities for repair and replacement of water control structures and levees.
2. Repair or replace water control structures and levees in order of priority.
3. Coordinate with adjacent landowners and county flood control districts regarding water management.

FM GOAL 2: ***Effectively manage existing facilities and equipment for resource protection, operations, and safe public uses.***

Tasks:

1. Maintain gates, fences and water management infrastructure.
2. Maintain signage that informs the public of the boundaries, laws, and regulations of the NSMWA.
3. Start a monitoring and maintenance schedule for all signage. Replace signage as needed.
4. Regularly monitor the condition and use of existing facilities.
5. Conduct preventative maintenance of facilities and structures.
6. Maintain existing dirt and paved roads in the NSMWA.
7. Obtain funding and upgrade buildings at field headquarters at Duhig Road.

FM GOAL 3: ***Minimize potential contamination risks from ground disturbing activities.***

Tasks:

1. Prior to implementation of any specific project involving ground disturbance, DFG would assess of potential hazardous materials to be encountered, such as through the preparation of an Initial Site Assessment. During any excavation activities, inspections of exposed soils would occur for visual evidence of contamination. If possible, potentially contaminated areas, identified in the assessment of potential hazardous materials, would be avoided. If visual indicators of contamination are observed during excavation or grading activities, all work would stop and an investigation would be designed and performed to verify the presence and extent of contamination at the site. Results would be reviewed and evaluated by the appropriate county's environmental health agency or the Department of Toxic Substance Control prior to continuing excavation activities. The investigation would include collecting samples for laboratory analysis and quantification of contaminant levels within the proposed excavation and surface disturbance areas. The results of subsurface

investigations would be used to determine appropriate worker protection and hazardous material handling and disposal or disposition appropriate for the subject site. Areas with contaminated soil and groundwater determined to be hazardous waste would be removed by personnel who have been trained through the OSHA-recommended 40-hour safety program (29 CFR 1910.120) with an approved plan for groundwater extractions, soil excavation, control of contaminant releases to the air, and off-site transport or on-site treatment. A health and safety plan, prepared by a qualified and approved industrial hygienist, would be used to protect the general public and all workers in the construction area.

5.2.6 Administrative Element

Administration of the NSMWA includes staff management, data management, purchase of equipment and supplies, operational budget management, obtaining grants and habitat management activities.

ADMIN GOAL 1: ***Maintain current data on the management and resources at NSMWA.***

Tasks:

1. Maintain financial records regarding expenditures, staff, maintenance, and other administrative duties.
2. Consolidate geographic data and develop a geographic information system (GIS).
3. Develop and maintain a database of monitoring data, management activities, permits and MOUs (e.g., weed management actions implemented and outcomes and regulatory permits or MOUs received [old or active] from other resource agencies [e.g., BCDC, RWQCB, ACOE]).

5.2.7 Scientific Research and Monitoring Element

Scientific research and monitoring in the NSMWA is currently conducted both by the DFG and outside entities. Research and monitoring can directly contribute into adaptive management of the NSMWA, by providing relevant, timely information on the ecology of species and habitats of the Wildlife Area. The scientific research and monitoring element of the LMP addresses past, current and future research and monitoring in the NSMWA.

SRM GOAL 1: ***Improve understanding of ecosystem processes and trends, and evaluate the implementation, effectiveness and validity of management actions in the NSMWA through an effective monitoring program. Use the information obtained to adjust management strategies as appropriate.***

Tasks:

1. Conduct baseline and follow-up biological monitoring for planned restoration projects in the NSMWA. This may include monitoring fish (see aquatic ecosystem goals), aquatic invertebrates, avian, plant and water quality response to management actions.
2. Define monitoring to support evaluation of project goals and objectives and inform adaptive management.
3. Adopt monitoring design that will include data collection that is self-sustaining when possible (e.g., equipment with automatic data recording) and minimize operations and maintenance as much as possible.
4. Integrate site-specific monitoring efforts with regional monitoring programs using CDF approved/accepted protocols (e.g., California Rapid Assessment Method [CRAM], Integrated Regional Wetland Monitoring [IRWM]).
5. Require researcher to provide electronic version of study results and link to Management Units' GIS.
6. Conduct plant, wildlife, aquatic, invertebrate, and fisheries inventories of the NSMWA.

SRM GOAL 2: ***Encourage and support scientific research that fosters the scientific understanding needed to protect and enhance resources of the NSMWA, and contributes to adaptive management strategies.***

Tasks:

1. Utilize DFG's January 2008 Science Policy in the planning, approval and management of scientific research conducted in the NSMWA by DFG staff and outside entities (includes recommendation for scientific oversight, scientific staff development and classification and data management).
2. Develop a prioritized list of research needs.
3. Coordinate with local education institutes or universities to conduct research studies that would provide needed data for guiding management decisions.
4. Require researchers to provide copies of data and/or published papers, and contact researchers to ensure that this requirement is fulfilled.
5. Create an electronic database of scientific research conducted in the NSMWA.